Mediators of Inflammation

Hindawi

Special Issue on

The Molecular Mechanism of the Interplay between Microbiota and Innate Immunity

CALL FOR PAPERS

Gut microbiota is a key node that integrates a variety of signaling pathways activated through environmental stimuli, such as diet and genetic and epigenetic inputs that profoundly affect host metabolism, inflammation, and disease pathogenesis. There is considerable evidence suggesting that a complex interplay between microbiota and innate immunity may mediate development of chronic inflammation that precedes the development of numerous types of diseases. Inflammation has been linked with increased DNA methylation in healthy tissues and chronic inflammation has been defined as "a truly epigenetic phenomenon." Distinct epigenetic changes in various types of immune cells are frequently observed in obesity and type 2 diabetes mellitus, and these are associated with alterations in the phenotype, function, and trafficking patterns of these cells. Many of them, at least in the context of metabolic disorders, are linked to inflammation. Epigenetics alterations related to food components, metabolites, and environmental factors have also been recognized as important mediators of inflammation, with a role in the pathogenesis of inflammatory diseases.

An epigenetic dynamic drives gene transcription during the different phases of inflammation enabling coordinate regulation of the activity of the mediators of inflammation at both molecular and cellular level. In this respect, the novel epigenetics and transcriptomics molecular technologies have provided unprecedented opportunity to achieve a wider picture, at multiple levels, allowing concrete advancements in the field. It cannot be denied that the study of transcriptomics and epigenetics provided important insights into the cellular pathways by which inflammation and pathology progress in several disorders and highlighted novel therapeutic options.

Potential topics include but are not limited to the following:

- The role of microbiota in innate immunity regulation
- Molecular and cellular mechanisms of inflammation
- Role of epigenetic switches in cancer, obesity, diabetes, and other complex immune diseases
- Epigenetics and transcriptomics regulation of innate immune cells mediating the release of inflammatory mediators
- Classification and potential functions of innate lymphoid cells (ILCs) as mediators of inflammation

Authors can submit their manuscripts through the Manuscript Tracking System at https://mts.hindawi.com/submit/journals/mi/timi/.

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Lead Guest Editor
Azzam A. Maghazachi, University of Sharjah, Sharjah, UAE
amagazachi@sharjah.ac.ae

Guest Editors
Sandra Gessani, Istituto Superiore di Sanità, Rome, Italy
sandra.gessani@iss.it

Rifat Hamoudi, University College London, London, UK
r.hamoudi@ucl.ac.uk

Saleh Ibrahim, Institute of Experimental Dermatology, Lubeck, Germany
saleh.ibrahim@uksh.de

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